

The trend of adaptation, then, has been:

1. From semi-aquatic to fully aquatic habitat.
2. From the dangers of swiftly running, to the safety of quiet waters.
3. Loss of wings and increase in length of legs and claws.
4. Change in body structure of larvae, from circular, limpet-shaped, or lobed, to round, worm-like.

#### LITERATURE CITED.

- DARLINGTON, P. J., JR., 1929. On the Dryopid beetle genus *Lara*. *Psyche*, Vol. XXXVI, pp. 328-331.
- FORBES, W. M. T., 1922. The wing-venation of the Coleoptera. *Ann. Ent. Soc. of Amer.*, Vol. XV, pp. 328-345.
- KEMPERS, K. J. W., 1900. Het Adersystem der Kevelengels. *Tyd. voor Ent.*, Vol. XLIII, p. 192.
- WEST, L. S., 1929. Life history notes on *Psephenus lecontei* Lec. *Battle Creek College Bull.*, Vol. III (No. 1).

#### EXPLANATION OF PLATE III.

- Fig. 1. Hind wing of *Helichus fastigiatus* Say. Fully developed type.
- Fig. 2. Hind wing of *Limnius elegans* LeConte. Fully developed, fringed.
- Fig. 3. Hind wing of *Stenelmis crenatus* Say. Reduced type.

### **A Corduline Dragonfly from Mexico (Odonata).**

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In a small collection of insects, that was made incidentally to a botanical excursion in Mexico by Dr. L. H. McDaniels of Cornell University, there was a single dragonfly, which, by rare chance, is the first Corduline dragonfly to be recorded from that country. It is a fine male specimen of a new species of the genus *Gomphomacromia*.

The rarity of neotropical Cordulines (and of Macromiines as well) has been noted by Dr. Calvert (*Biol. Centr. Amer.*, *Neuropt.*, pp. 197-8, 1908), Dr. Ris (*Archiv. of Naturg.* 82:174, 1916), and others. The range of *Gomphomacromia* is along the backbone of the continent. The type species is the antipodean *G. paradoxa* Brauer, coming from Chile; *G. fallax* McL. is central, coming from Ecuador and adjacent parts of Brazil; while this new species is northern. Other species that in times past have wrongly been placed in *Gomphomacromia* have gradu-

ally been eliminated, the last one *Necocordulia volxemi* Selys, by myself in Annals of the Entomological Society of America 1:279, 1908, where I also showed the affinities of this genus to be with Cordulines rather than with Macromiines.

The three species are readily separable by color characters, as follows:

1. Front of synthorax blackish, with a pair of distinct oblong antehumeral yellow spots.....*paradoxa*  
Front of synthorax brown with a yellow longitudinal stripe on the middorsal carina, and without distinct antehumeral pale spots ..... 2
2. Abdominal segments 9 and 10 in the male black above,  
*fallax*  
Abdominal segments 9 and 10 in the male yellow above,  
*mexicana*, n. sp.

### **Gomphomacromia mexicana** sp. n.

Length 45; expanse 58; abdomen 33; hind wing 27.

This is a slender blackish species, having the thorax striped and the abdomen spotted with yellow. Face olivaceous, darker across the middle of the labrum, and lighter on the broadly concave prominence of the frons. Labium yellowish. A black cross stripe through the ocelli runs narrowly down the rear of the frons along the margin of the eyes to the blackish mandibles. The low transversely depressed vertical tubercle is brown. Occiput brown, paler in the middle and fringed on the margin with long tawny hairs. This fringe is continued down the carina at the rear of the eyes, the hairs becoming whitish. Rear of head black except on the occiput, and a small spot below the lateral eye tubercle.

Prothorax blackish above with a yellow transverse front border. Synthorax blackish, clothed in front with long tawny hairs. The ridges of carina, crest and collar are narrowly yellow. There is an obscure, pale brownish area before the humeral suture, and there are two broad yellow oblique bands each side, one beneath each wing.

Wings hyaline, a little flavescent at base and with black veins and stigma. Ante- and postnodals forewing 7:8 and hind wing 5:9, with those in the area R1 near the stigma becoming oblique, and the first of the two cross veins under the stigma simulating a true brace vein. There is an extra bridge crossvein (two in all). There are no planates. The triangles are free from cross veins. Beyond the triangle in the front wing are first two rows then one row (for most of the distance), then a rapidly increasing number of rows of cells where veins M4

and Cu1 rapidly and widely diverge to the wing margin. There are three cubito-anal cross veins (counting the one that bounds the uncrossed subtriangle) in the fore wing, and two in the hind wing. The triangle in the hind wing is a little beyond the arculus, and the sectors of the arculus are short stalked, and about equally stalked, in both wings. The anal loop is not footshaped, lacking the toe: it is short, composed of six cells in two rows that are separated by an ill-defined and very zigzag midrib. The male anal triangle is two-celled and bordered by a gray membranule.

The legs are black, with the under side of the front femur yellow. The claws appear bifid at tip, the stout inferior tooth being almost at the apex.

The abdomen is quite slender, slightly thickened on a few segments at both ends. Segments 1 and 2 are thinly clad with long tawny hairs, and 10 and appendages with shorter denser black hairs. The color is blackish with a pair of submedian dorsal yellow spots on segments 2-7, large on 3 and 7, small on 2 and 4-6: dorsum of 9 and 10 mostly yellow; apical border of 1 olivaceous; sides of 2 beneath and the broad platelike hamules, yellowish. Appendages black, as long as segments 9 and 10 together, the superiors regularly decurving to their obtuse and slightly dilated tips, which lie in the wide apical notch of the broad plate-like, slowly upcurving inferior. The latter is concave and shining above, convex and hairy beneath. There is a slight pale angulation of the under side of the superiors near the middle.

This species is near *G. fallax*. It agrees with that species and differs from *G. paradoxa* in larger size, in having five or six cross veins between the oblique vein and the apparent brace vein at the stigma (postnodals of the second series), where that species usually has three; also, in having the triangle of the hind wing more distant from the arculus, and the origin of vein A2 more distant from the anal crossing (Ac).

This species differs from *G. fallax* in the large pale yellow campanulate spots that nearly cover the dorsum of abdominal segments 9 and 10 and in the form of the superior appendages of the male, these being in *G. mexicana* longer, much more strongly decurved to their blunt clavate tips.

*Type* C. U. No. 1127. A single male specimen collected by Professor L. H. MacDaniels at Teotihuacan, MEXICO, on July 26, 1921, and now in the Cornell University collection.